REMARKS

A petition for extension of time under 37 C.F.R. §1.136(a) and a Declaration under 37 C.F.R. §1.132 are being filed concurrently herewith.

Claims 1-4 and 8-24 are pending. Claims 14-19 are withdrawn. Claim 1 is amended to more specifically recite the invention. The amendment is supported on at least page 20, lines 9-17 of the specification as filed. Claims 25 and 26 are new. Support for the claims may be found in at least the paragraphs bridging pages 14-15, and Examples 1-4 of the specification as filed. No new matter has been added by way of amendment herein.

Claim Rejections – 35 USC § 103

The Examiner has rejected claims 1-4, 8-13 and 20-24 under 35 USC § 103(a) as obvious over Japanese publication JP 07-085722, translation NPL document U, to Yoshida et al. ("Yoshida") in view of US Patent No. 4,897,238 to Kouyama et al. ("Kouyama"). The rejections are traversed for the reasons described herein.

Claims 1-4, 8-10 and 21-26

Applicants respectfully submit that independent claim 1, as amended, is nonobvious in view of Yoshida and Kouyama.

As reiterated by the Supreme Court in *KSR International Co. v. Teleflex Inc.* (KSR), the framework for determining obviousness under 35 U.S.C. §103 is stated in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966); MPEP §2141(II). Obviousness is a question of law based on underlying factual inquiries. The factual inquiries enunciated by the Supreme Court are as follows:

(A) Ascertaining the scope and content of the prior art;

(B) Ascertaining the differences between the claimed invention and the prior art; and

(C) Resolving the level of ordinary skill in the pertinent art.

The ultimate determination of patentability is based on the entire record, by a preponderance of evidence, with due consideration to the persuasiveness of any arguments and any secondary evidence. MPEP §2142. The legal standard of "a preponderance of evidence" requires the evidence to be more convincing than the evidence which is offered in opposition to it. Id. With regard to rejections under 35 U.S.C. §103, the examiner must provide evidence which as a whole shows that the legal determination sought to be proved (i.e., the reference teachings establish a prima facie case of obviousness) is more probable than not. Id.

The key to supporting any rejection under 35 U.S.C. 103 is the clear articulation of the reason(s) why the claimed invention would have been obvious. The Supreme Court in KSR noted that the analysis supporting a rejection under 35 U.S.C. 103 should be made explicit. The Court quoting In re Kahn, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006), stated that "'[R]ejections on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.'" Id.

"The prior art references…need not teach or suggest all the claim limitations, however, Office personnel must explain why the difference(s) between the prior art and the claimed invention would have been obvious to one of ordinary skill in the art…The gap between the prior art and the claimed invention may not be "so great as to render the [claim] nonobvious to one

reasonably skilled in the art." MPEP 2141(III). In the case at hand, the "gap" between the claims and the cited references is "so great as to render the [claims] nonobvious."

In the Office Action, at page 2, section 2 thereof, the Examiner alleges that Yoshida discloses a semiconductive film having the composition of the pending claims, and admits that Yoshida "does not explicitly disclose the product by process steps of claim 1." However, a "prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention." W.L. Gore & Associates, Inc. v. Garlock, Inc., 721 F.2d 1540 (Fed. Cir. 1983); MPEP 2141.03(VI). Yoshida shows an experimental example where a tubular film was formed by using a resin composition comprising poly (ether ether ketone) (PEEK) and two kinds of conductive carbon black in Example 3. Specifically, Example 3 of Yoshida shows that a tubular film was formed by feeding the PEEK resin composition to a twin-screw extruder, melt-extruding the resin composition from a spiral die controlled to a temperature of 380°C ± 1°C, and causing the extrudate to pass through a cooling mandrel controlled to 20°C ± 1°C. **Therefore, Yoshida actually teaches away from claim 1, which recites a cooling temperature in a range of 60 to 120°C.**

Traditionally, when PEEK resin compositions are formed into a film in such a manner, it has been ordinary for one of ordinary skill in the art to quench the molten extrudate at a low temperature of about 20°C. However, this does not yield a film with the superior properties recited in claim 1.

Submitted with this response is a Declaration under 37 C.F.R. 1.132 by the co-inventor Yoshikichi TERAMOTO, presented to further demonstrate the deficiencies in the teachings of Yoshida with respect to the presently claimed semiconductive films. The Declaration specifically discloses semiconductive films obtained by feeding a resin composition comprising

PEEK and conductive carbon black having a DBP oil absorption of 125 ml/100g (i.e., acetylene black) to an extruder, melt-extruding the resin composition in the form of a film from a die, the lip clearance of which has been controlled to 0.9 mm, and then cooling and solidifying the film in a molten state by a cooling temperature in a range of 33 to 110°C.

Applicants wish to emphasize the resulting data from the comparison which are summarized in Table 1 and FIG. 1 of the Declaration.

It is apparent from the results shown in Table 1 of the Declaration that when acetylene black is used in a proportion of 18 parts by weight per 100 parts by weight of PEEK, a semiconductive film narrow in scatter of volume resistivity may be obtained. In addition, Table 1 and FIG. 1 of the Declaration show that when the temperature of a cooling mandrel is controlled within a range of 60 to 120°C, a semiconductive film narrow in scatter of thickness is obtained.

On the other hand, from the results shown in Table 1 and FIG. 1 of the Declaration, it is understood that when the temperature of the cooling mandrel is lowered to 33°C, the resulting semiconductive film tends to rapidly increase the scatter of thickness. In short, the experimental results of the Declaration show that when the temperature of the cooling mandrel is lowered to lower than 60°C, the maximum value of thickness of the resulting semiconductive film exceeds 1.3 times as much as the minimum value thereof. Thus, it can be understood that when the cooling mandrel temperature of 20°C ± 1°C shown in Example 3 of Yoshida is adopted, the scatter of thickness of the resulting semiconductive film becomes extremely great. This experimental result corresponds to the experimental result of Comparative Example 5 of the present specification, in which the temperature of the cooling roll was controlled to 20°C. **For all of these reasons, it is clear that Yoshida teaches away from the claimed inventions.**

Starting at page 2, section 2 of the Office Action, the Examiner attempts to cure the deficiencies of Yoshida with Kouyama. The Examiner alleges that Kouyama teaches "extruded sheets made out of PEEK" with processing parameters overlapping those of the currently pending claims. However, Kouyama does not teach a PEEK resin, and certainly does not teach the resin described in claim 1, as amended. **In fact, Kouyama teaches away from the resin disclosed in claim 1.**

Kouyama discloses a stretched poly(arylene thioether-ketone) film made of a thermoplastic material which comprises 100 parts by weight of a melt-stable poly(arylene thioether-ketone), and optionally, up to 100 parts by weight of at least one of thermoplastic resins and/or up to 15 parts by weight of at least one fillers. See, Kouyama, Abstract. The poly(arylene thioether-ketone) (PTK resin) taught in Kouyama is a synthetic resin having a repeating unit of "ketone thioether" (i.e., "ketone sulfide"), but including no repeating unit of "ether ether ketone" and is different from the PEEK resin used in the present invention.

The Examiner points to Column 1 of Kouyama for the proposition that Kouyama teaches PEEK resins. Column 1, however, teaches away from PEEK resins. Column 1 of Kouyama only describes the expectation that PTKs may become heat-resistant thermoplastic resins similar to PEEKs and PEKs. First, in describing the need to replace PEEK resins, Kouyama teaches that:

> These resins [PEEK] however use expensive flourine-substituted aromatic compounds...[and] involve a problem in expanding their consumption.

Kouyama goes on to describe PTK resins as a replacement for PEEK resins:

> Based on an assumption that PTKs could be promising candidates for heat-resistant thermoplastic resins like PEEKs and PEKs owing to their similarity in chemical structure, PTKs have been studied to some extent to date.

See, Kouyama, Column 1, lines 51-61.

As amended, claim 1 recites a PEEK resin and "at least one other thermoplastic resin, the at least one thermoplastic resin in a proportion of at most 5 parts by weight per 100 parts by weight of the poly(ether ether ketone)." The Examiner also points to Column 8 of Kouyama for the proposition that Kouyama teaches PEEK resins, but Column 8 further teaches away from the resin of claim 1 as amended. Column 8 teaches a resin including PTK alone, or a resin composition obtained by blending 100 parts by weight of PTK, and 0 to 100 parts by weight, preferably 0 to 90 parts by weight, more preferably 0 to 80 parts by weight of another thermoplastic resin. See, Kouyama, Column 8, lines 36-47. While Kouyama exemplifies many thermoplastic resins including PEEKs as the secondary thermoplastic resin, the ratios taught in Kouyama are completely disproportionate to those of claim 1. See, Kouyama, Column 8, lines 48-62.

In the first paragraph of page 3 of the Office Action, the Examiner further points to Examples 5 to 7 of Kouyama to demonstrate quenching the resin on a cooling roll controlled to 79°C. However, although Examples 5 to 7 show that PTK resin (Polymer P2) was melt-extruded, the Examples do not disclose or suggest anything about film-forming conditions for PEEK or a resin composition comprising PEEK as a main component. Once again, the resin component used in the present invention is PEEK alone or a resin composition comprising 100 parts by weight of PEEK and up to 5 parts by weight of another thermoplastic resin. In addition,

Applicants note that Example 1 of Kouyama shows that the temperature of the cooling roll was controlled to 50°C, which is outside the range of claim 1.

Further still, Kouyama does not specifically show an experimental example that a film was formed with a resin composition comprising 100 parts by weight of the thermoplastic material and 5 to 40 parts by weight of conductive carbon black. Accordingly, the resin component used in the present invention is markedly different from the thermoplastic material disclosed in Kouyama in component(s) and/or quantitative proportions of components used.

Therefore, Applicants submit that Kouyama does not suggest that when a resin composition comprising PEEK and conductive carbon black is formed into a film, a cooling temperature of a molten film is controlled within a range of 60 to 120°C, thereby obtaining a semiconductive film narrow in scatters of both thickness and volume resistivity and excellent in mechanical properties.

Predictability and an expectation of success are required for obviousness. See MPEP 2143.02. Thus, it becomes essential to determine what would have been "predictable" and "expected" about this hypothetical combination of Yoshida and Kouyama to one skilled in the art. The Applicant maintains that one of ordinary skill in the art would not have had an expectation of success in light of the teachings of these references, and in light of the knowledge of one of ordinary skill in the art as evidenced by the specification of the present application as filed. Thus, one of ordinary skill in the art would not have found it obvious to modify the Yoshida in light of Kouyama.

To summarize, the Examiner alleges that Yoshida teaches the resin of the claims, but in fact, Yoshida teaches away from the processing steps of claim 1 by teaching a cooling temperature of 20°C. As evidenced by the declaration, a cooling temperature below 60°C yields

very poor properties. The Examiner cites to Kouyama to teach the processing steps of the claims, however, Kouyama teaches a different polymer resin altogether. One of ordinary skill in the art knows that processing parameters are more often than not unique to individual polymers. Processing parameters for one polymer do not typically yield the same or similar results for anther polymer because "[t]he values of the rheological parameters of a given polymer depend on the details of its molecular structure and molecular weight distribution." John M. Dealy & Kurt F. Wissburn, Melt Rheology and Its Role In Plastics Processing – Theory and Applications 365 (Kluwer Academic Publishers 1999) (1990). In particular regarding blowing and sheet extrusion, "[the polymer] behavior in such a free surface flow [after leaving the die] is strongly dependent on its rheological properties, with thermal properties also playing an important role." Id. at 540. In other words, the behavior of a polymer after exiting the die depends on rheological properties, which in turn depends on molecular structure. Therefore one of ordinary skill in the art would not have an expectation of success in using the processing parameters of one polymer for use with another molecularly different polymer.

The Examiner has not made a *prima facie* case of obviousness. The Examiner has not explained why one of ordinary skill in the art would rely on one temperature in Kouyama, while another temperature in Kouyama and the temperature taught in Yoshida teach away from the claimed range. This allegation can only be made with impermissible hindsight reasoning. Further, the Examiner has not explained why one of ordinary skill in the art would have had an expectation of success in borrowing the processing parameters from a completely different polymer and applying them to the resin of claim 1.

In view of the foregoing, Applicants submit that independent claim 1 is nonobvious in view of Yoshida and Kouyama. Applicants further submit that claims 2-4, 8-10 and 20-26,

which depend from claim 1, is also nonobvious in view of Yoshida and Kouyama. *See* MPEP §2143.03 (stating that if an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious). Accordingly, Applicants respectfully request that the §103(a) rejections associated with claims 1-4, 8-10 and 20-24 be withdrawn.

Claims 11-13

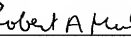
Independent claim 11 recites a charge controlling member formed with the semiconductive film according to claim 1. Therefore, for reasons similar to those set forth hereinabove with respect to claim 1, Applicants submit that claim 11, and claims 12-13 which depend therefrom, are nonobvious in view of Yoshida and Kouyama. Accordingly, Applicants respectfully request that the §103(a) rejections associated with claims 11-13 be withdrawn.

CONCLUSION

Applicants respectfully request a Notice of Allowance for the pending claims in this application. If the Examiner believes that personal communication will expedite the prosecution of this application, the Examiner is respectfully requested to contact the undersigned at the telephone number listed below.

Respectfully submitted,

Date: February 16, 2010



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